



URBANIZATION AND ITS EFFECTS - LIFE STYLE DISEASES AMONG MIDDLE AGED WOMEN IN SELECTED VILLAGES OF BENGALURU RURAL DISTRICT

Shubha ¹, Loksha K², Kashi Ashwini ³

1. Associate Professor of Botany, Government First Grade College, Vijayanagar, Bengaluru 560104, Karnataka, India

2. Research Assistant, ICSSR Major Research Project, Department of Botany, Government First Grade College, Vijayanagar, Bengaluru - 560104, Karnataka, India

3. Post Internee, Kempegowda Institute of Medical Sciences, Bengaluru, Karnataka, India

Abstract: The occurrence of lifestyle diseases such as hypertension and diabetes including obesity has increased among the rural women population over the past few years. The increase in the prevalence of these diseases has been associated with increased urbanization and changes in their lifestyle. This research was undertaken to study the lifestyle factors and prevalence of lifestyle diseases (LSD) among middle-aged women in urbanized pockets of Bangalore Rural. The prevalence of lifestyle diseases was 35.2%. Hypertension was the most common disease with 25.49% cases followed by diabetes 13.72% and obesity 10%. There was a significant association between lifestyle factors like consumption of rice, heredity, overweight and obesity with lifestyle diseases among these middle-aged women. At this juncture, as the contribution of middle-aged women to healthy society and nation's economy is significant, there is an urgent need for intervention of government and policy makers to promulgate effective guidelines to control LSDs among middle aged women.

Keywords-Lifestyle Diseases, rural women, hypertension, diabetes, obesity

I. INTRODUCTION

Lifestyle diseases (LSD) can be defined as diseases linked with one's lifestyle. These diseases are non-communicable diseases (NCD). They are caused by lack of physical activity, unhealthy eating, alcohol, substance use disorders and smoking tobacco, which may lead to heart disease, stroke, obesity, type II diabetes and Lung cancer.^{[1][2]} Lifestyle is a way in which an individual cope himself physically, socially, psychologically, and economically through day to day that is incredibly vital. The outcome of Lifestyle instabilities may be physical limitations and if are ignored can lead to LSDs. Lifestyle diseases are characterized on the basis of prevalence on daily habits of individuals and are fallouts of an inappropriate relationship of individuals with their surroundings.

LSDs appear to increase in frequency as countries become more industrialized and people live longer and include, asthma, cancer, chronic liver disease or cirrhosis, chronic obstructive pulmonary disease, colitis, irritable bowel syndrome, type 2 diabetes, heart disease, hypertension, metabolic syndrome, chronic kidney failure, PCOD, stroke, depression, obesity and vascular dementia. These LSDs are expected to increase through aging years if people do not improve their lifestyle choices.^[3] The increase in the prevalence of these diseases has been associated with increased urbanization and lifestyle changes. The research was undertaken to study the lifestyle factors and prevalence of lifestyle diseases (LSD) among middle-aged women in urbanized pockets of Bangalore Rural. With increased urbanization and rapid

development in the past few years the increase in these diseases has reached disturbing proportion, in the recent years, among Indians ^[7]. NCDs have not only become a major health problem in urban but also in rural population inhabitants ^[8].

The area of study, Upparahalli and Alappanahalli villages are situated in Hoskote Taluk, Bangalore Rural District, Karnataka. Hoskote had a population of 56980. Males constitute 52% of the population and females 48%. Hoskote has an average literacy rate of 86.22%, higher than the state average of 75.36%: male literacy is 89.58%, and female literacy is 82.68%. Karnataka State Highway 35, commonly referred to as KA SH 35, is a state highway running from Sidlaghatta (North) to Anekal (South) passing through Hoskote.

Hypertension: Hypertension also known as high blood pressure (HBP) is a long-term medical condition in which the blood pressure in the arteries is persistently elevated. Effective lifestyle modification can lower blood pressure by at least as much as a single antihypertensive drug. Even a 2 MMHG decrease in diastolic blood pressure has been found to reduce hypertension prevalence by 17%, risk of coronary heart disease by 6%, and stroke by 15% (NANCY R COOKET AL., 1995)⁶. Hypertension is a significant risk factor for coronary artery disease and stroke, a leading cause of death and disability worldwide, and a major risk for dementia, chronic kidney disease, coronary heart disease, and heart failure. The prevalence of hypertension-related events is increasing, with the majority occurring among pre-hypertension (120-139 MMHG systolic; 80-89 MMHG diastolic) and stage-1 hypertensive (140-159 MMHG systolic; 90-99 MMHG diastolic). The risk of hypertension was positively associated with higher socioeconomic position (SEP) in rural India. The prevalence of hypertension was greater in sites with higher average SEP.

Lifestyle changes and medications can lower blood pressure and decrease the risk of health complications. A report of POULTER NR, ET AL., (2015) recorded that, lifestyle changes include weight loss, physical exercise, decreased salt intake, reducing alcohol intake, and a healthy diet.^[7] if lifestyle changes are not sufficient, then blood pressure medications are used.

Type 2 Diabetes: Strict glucose control can delay or prevent the progression of complications associated with diabetes^{[3][8]} and there is also substantial evidence that leading a healthy lifestyle, including following a healthy diet, achieving modest weight loss, and performing regular physical activity can maintain healthy blood glucose levels and reduce the risk of complications of type 2 diabetes ^{[4][9]}. Lifestyle changes are often advised for people at higher risk of diabetes and those who are newly diagnosed with type 2, to help manage their diabetes.

Type 2 diabetes primarily occurs as a result of obesity and lack of exercise. Some people are more genetically at risk than others. Type 2 diabetes makes up about 90% of cases of diabetes, with the other 10% due primarily to type 1 diabetes and gestational diabetes. In type 1 diabetes there is a lower total level of insulin to control blood glucose, due to an autoimmune induced loss of insulin-producing beta cells in the pancreas.^{[10][11]}

II. RESEARCH METHODOLOGY

Objective of our study is to know the impact of urbanization on rural women health caused by changes in their lifestyle The questionnaire was prepared in consultation with a medical doctor as the survey is related to lifestyle disease observed in women in due to urbanization to elicit data on basic information, family history, lifestyle and details of lifestyle diseases of the respondents. As most of the women might not be aware of the LSD they have, a lady medical doctor was also accompanied to the survey area to check for the occurrence of hypertension, diabetes and obesity so that the study will have first-hand information which is near to accuracy. The instrument used to check hypertension, random Blood Sugar were Omron Blood Pressure Monitor, Accu chek Glucometer respectively.

The survey includes the women respondents with a mean age of 47 (+/- 17) years, most of the respondents belonged to class II and III that is poor to moderate socioeconomic status.

The team consisting project director, a medical doctor and research assistant of the project conducted survey in Alappanahalli and Upparahalli villages belonging to Kumbalahalli Gram Panchayath, Hoskote Taluk, Bengaluru rural and located 34-35 km distance away from Bengaluru. Because of the proximity, immediate effects of urbanization can be seen

A Questionnaire prepared was used to elicit data on basic information, respondents' family history, lifestyle and lifestyle diseases among them.

ALAPPANAHALLI

Alappanahalli village is located in Hoskote Tehsil of Bangalore Rural district in Karnataka, India. It is situated 3.5 km away from sub-district headquarter Hoskote and 34 km away from district headquarter Bangalore Rural.

The total geographical area of village is 133.91 hectares. Alappanahalli has a total population of 1,115 peoples. There are about 214 houses in Alappanahalli village. Hoskote is nearest town to Alappanahalli which is approximately 3.5 km away. Kannada is the Local Language here. Total population of Alappanahalli is 1,115 Males are 570 and Females are 545 living in 214 Houses. Total area of Alappanahalli is 134 hectares.

Alappanahalli village got a modern touch in recent years by having basic amenities by local governments. Here women are engaged in many activities such as, tailoring, teaching at school, running own business, agriculture, flower vending, milk production etc., which makes them financially independent to some extent.

As this village is very close to the Hoskote town & in turn Bengaluru, the impact of urbanization and industrialization are clearly visible'

Ragi, paddy, bean, gram, millets, vegetables are the major food crops. They eat all kind of available vegetables, non -vegetarian food like mutton, chicken, fish, egg etc. Finger millet ball is the major meals.

UPPARAHALLI

Upparahalli village is located in Hoskote Tehsil of Bangalore Rural district in Karnataka, India. It is situated 2 km away from sub-district headquarter Hoskote and 30 km away from district headquarter Bangalore Rural.

The total geographical area of village is 83.1 hectares. Upparahalli has a total population of 1040 peoples of which 528 males while 512 are females according to 2011 census of India. There are about 206 houses in Upparahalli village. Hoskote is nearest town to Upparahalli which is approximately 2 km away.

Upparahalli has good infrastructure, government school, a co-operative society, small retail shops etc. Here the women are engaged in agriculture, dairy and petty business activity too. Dairy is one of the main sources of income for women.

Ragi, paddy, bean, gram, millets, coriander, beetroot, capsicum are the major food crops grown here. They also grow flowers like, button rose, jasmine, firecracker flower, chrysanthemum etc., Upparahalli women eat both vegetarian and non-vegetarian food like chicken, fish and meat. Finger millet ball is the major food.

III. RESULTS AND DISCUSSION

The research work intended to study the effect of urbanization on lifestyle changes resulting in lifestyle diseases is very much needed with respect to middle aged women as they contribute significantly to a healthy family and income generation to raise the children. Urbanization leads to a greater prevalence of risk factors for NCD's, the effect being much greater among women than men⁸. Significant differences in prevalence of hypertension were noted between rural and urban parts 27.6% in rural parts and 33.8% in urban parts. 21.1% in rural south and 31.8% in urban South India as reported by Raghupathi Anchala *et al.*, (2014)^[12]. At both Alappanahalli and Upparahalli villages 25.5% of the respondents were having hypertension. Overall prevalence of hypertension in India is 29.8%. The study indicates that in these villages the prevalence of hypertension which is lower than National level and higher than South Indian

percentage that can be attributed to the changes in the lifestyle due to urbanization. In a study done in Bengaluru rural by Deepadarshan *et al.*,^[13] found hypertension among 25% where the disease prevalence in our study is 25.5% in rural women. Also it is higher compared to study done by Bhagyalakshmi *et al.*, (2013)^[14] in rural Gujarath where 20% of subjects were suffering from hypertension problem. Further, a significant association of other risk factors were studied along with lifestyle diseases is reported.

In Alappanahalli village 47% and in Upparahalli 39% of middle-aged women who had BP were involved in socialization. Among hypertensive women studied, 9% at Upparahalli and 6% at Alappanahalli belong to vegetarian diet and the diet of rest of the respondents included nonvegetarian food. This study with respect to food indicates that vegetarian food has a positive impact on the control of blood pressure among the respondents. At Alappanahalli out of all hypertensive respondents only 45% are involved in agricultural activity and 55% were involved in domestic and some moderate activities but at Upparahalli out of all hypertensive women 75% were involved in agriculture activity. In Alappanahalli and Upparahalli villages there are about 95% and 83% of hypertensive respondents watch Television daily. Watching television might have changed their life style and helped them to get the disease even though it was not either familial or occupational with respect to the respondents of the two villages.

Population-based studies reported by Pradeepa *R* (2011)^[15], and K. N. Kumar, (2018)^[16] showed that the average onset of Type 2 Diabetes mellitus among Indians is gradually increasing in the age groups below 50 years of age.

According to the 2019 National Diabetes and Diabetic Retinopathy Survey Report released by the Ministry of Health and Welfare, the prevalence was found to be 11.7% in middle aged women in India. Overall prevalence for diabetes in India was 11.8% as per the report of National Diabetes and Diabetic Retinopathy Survey, 2019. China is having the highest number of diabetic individuals in the world (approximately 114.4 million) as per the International Diabetes Federation 2017 reports followed by India with more than 72.9 million of diabetics (IDF 2017)^[17]

As per table 1 and 2, 13.5% and 14% of the respondents were diabetic in Alappanahalli and Upparahalli villages respectively which is lower than the study done by Deepadrashan *et al.*, (2017)^[13] which showed 16.7% diabetic cases in rural population in Bengaluru rural district.

43% of diabetic respondents from Alappanahalli village and 64% of respondents from Upparahalli were having socialization during their free time. 57% and 29% of respondents with diabetes were having non-vegetarian diet. 43% and 57% diabetic respondents from Alappanahalli and Upparahalli respectively were homemakers or showed mild or moderate physical activity and not involved in agricultural activity which is regarded as high level physical activity. This report clearly indicates that non vegetarian diet and moderate to low level physical activity may be risk factors for the onset of diabetes. In Alappanahalli 80% and Upparahalli village 57% respondents with diabetes have the habit of watching television for 4-5 hrs per day which may be the cause for the disease. The hours spent watching television can be taken as a substitute for sedentary life style, because there is very little subjectivity involved in this measure and higher hours of television watching correlates fairly well to sedentary lifestyle (Vereecken C A *et al.*, 2006)¹⁸.

In Alappanahalli village 29% of diabetic respondents were obese and 14% in Upparahalli village. Hence as per Table 1 and Table 2 low physical activity and watching TV for a long period in a day leading to sedentary life style are risk factors which may be the result of urbanization. This study is in concurrence with the findings of the study conducted in urban area by Violet Jayamani *et al.*, (2014)^[19] which suggests that women in urban areas have a high prevalence of risk factors such as low physical activity, high calorie diet, and high levels of overweight and obesity which puts them at a high risk for NCDs. A significant 29% of diabetic respondents are suffering from obesity issue in Alappanahalli village, where it is 14% in Upparahalli village.

Women's safety and health issues at work need to be addressed and diagnosed at an early stage on priority. For this, regular health checkups can be opted.^[13]

The study conducted in two villages around Bengaluru also suggest that there is prevalence of risk factors even in rural women due to urbanization which should be brought to the notice of the Government to take necessary actions and interventions to prevent LSD in middle aged women in rural areas showing urbanization as these women also contribute to their family income and it may get affected if they get LSD. In conclusion, we can safely say that risk factors of lifestyle diseases like low physical activity, unhealthy food habits, less socialization, watching Television for longer hours should be avoided. Well planned awareness programs should be organized to make these women understand the causes for LSD and their prevention through relevant lifestyle changes.

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TABLES

Table 1: Percentage of respondents with hypertension and diabetes at Alappanahalli village

ALAPPANA HALLI VILLAGE					
Total no. of Respondents		Percentage of respondents with hypertension		Percentage of respondents with diabetes	
200		27%		13.5%	
SOCIALIZATION					
HYPERTENSION	YES	46%	DIABETES	YES	43%
	NO	54%		NO	57%
FOOD					
HYPERTENSION	VEG	6%	DIABETES	VEG	43%
	NON-VEG	94%		NON-VEG	57%
HEREDITY					
HYPERTENSION	BY HEREDITY	14%	DIABETES	BY HEREDITY	14%
	WITHOUT	86%		WITHOUT	86%
OCCUPATION					
HYPERTENSION	AGRICULTURE	71%	DIABETES	AGRICULTURE	57%
	MODERATE WORKS	29%		MODERATE WORKS	43%
TELEVISION WATCHING					
HYPERTENSION	TV WATCHING	95%	DIABETES	TV WATCHING	80%
	DO NOT WATCHING	5%		DO NOT WATCHING	20%
OBESITY					
HYPERTENSION	OBESE	29%	DIABETES	OBESE	29%
	NOT OBESE	71%		NOT OBESE	71%

Table 2: Percentage of respondents with hypertension and diabetes at Upparahalli village

UPPARAHALLI VILLAGE					
Total no. of Respondents		Percentage of respondents with hypertension		Percentage of respondents with diabetes	
200		25%		14%	
SOCIALIZATION					
HYPERTENSION	YES	25%	DIABETES	YES	64%
	NO	75%		NO	36%
FOOD					
HYPERTENSION	VEG	91%	DIABETES	VEG	71%
	NON-VEG	09%		NON-VEG	29%
HEREDITY					
HYPERTENSION	BY HEREDITY	17%	DIABETES	BY HEREDITY	0%
	WITHOUT	83%		WITHOUT	100%
OCCUPATION					
HYPERTENSION	AGRICULTURE	75%	DIABETES	AGRICULTURE	43%
	MODERATE WORKS	25%		MODERATE WORKS	57%
TELEVISION WATCHING					
HYPERTENSION	TV WATCHING	83%	DIABETES	TV WATCHING	57%
	DO NOT WATCHING	17%		DO NOT WATCHING	43%
OBESITY					
HYPERTENSION	OBESE	08%	DIABETES	OBESE	14%
	NOT OBESE	92%		NOT OBESE	86%